

Five-Strand Hamstrings Autograft Versus Quadruple Hamstrings Autograft, with Graft Diameters 8.0 Millimeters or More, in Anterior Cruciate Ligament Reconstruction: Clinical Outcomes with a Minimum Two Year Follow-Up

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Summary:

A 5-strand hamstrings graft in ACL reconstruction is a valid option when we have an insufficient diameter graft with quadrupled grafts

Abstract:

Purpose: Hamstrings autograft for anterior cruciate ligament (ACL) reconstruction has an inherent variability in graft diameter. The purpose of this study is to compare the clinical outcomes of 2 groups of patients undergoing ACL reconstruction: the first with a quadrupled semitendinosus gracilis (ST-G) autograft larger than 8 mm diameter and the second with a 5-strand ST-G autograft larger than 8 mm due to an insufficient diameter graft harvesting.

Methods: Retrospective study, 70 patients divided into 2 groups. Inclusion criteria: ACL ruptures of less than 3 months, ST-G ACL reconstructions, final (4-strand or 5-strand) graft size larger than 8 mm. Exclusion criteria: multi-ligament knee injuries, meniscal or chondral pathology, ACL re-ruptures, inflammatory joint disease, other procedures needed in the knee.

Results: Group A: 33 patients with a quadruple ST-G graft, Group B: 37 patients with an insufficient graft diameter (<8 mm) in which a 5-strand graft was used. Mean Age: Group A 29.7 (17-52) years, Group B 30.6 (13-53) years ($p=0.78$). Average follow-up: Group A 32.2 (24-48) months, Group B 30.35 (24-48) months ($p=0.75$). Average diameter of the graft: Group A 8.5 mm (8-10), Group B when the graft was measured as quadruple 7.2 mm (6.5-7.5) and 9.2 mm (8-10) when it was converted to 5-strand ($p=0.00596$). Re-ruptures: 3 in group A (9%) and 2 in group B (5.4%) ($p=0.55$). Average postoperative Lysholm: 93.3 (71-100) in group A and 97.1 (80-100) in group B ($p=0.79$). Mean postoperative IKDC: 91 points (75.9-100) in group A and 96.8 (82-100) in group B ($p=0.18$).

Conclusions: In our study the 5-strand hamstrings graft in ACL reconstruction was clinically comparable to the quadruple graft larger than 8 mm. The differences in re-rupture and clinical outcomes were not statistically significant between the two groups, suggesting that is a valid option when we have an insufficient diameter graft.